

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Confirmation No.: 9028

Applicants : Hiroichi INADA, et al.

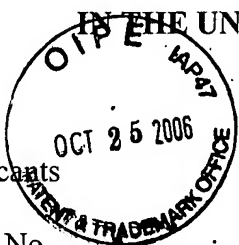
Serial No. : 10/511,104

Filed : October 14, 2004

Examiner : Brenda A. Lamb

Group Art Unit : 1734

For : SUBSTRATE PROCESSING APPARATUS



RESPONSE TO NOTICE OF NON-COMPLIANT AMENDMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This is in response to a Notice of Non-Compliant Amendment mailed on October 17, 2006 by the U.S. Patent and Trademark Office (USPTO) relative to the above-identified application. According to the Notice, the Amendment filed on October 4, 2006 is considered non-compliant because:

4C: Each claim has not been provided with the proper status identifier, and as such, the individual status of each claim cannot be identified.

4E. Other – “Originally 9 claims were filed. What amendment is adding claims 10-18? If there is none then claims 10-18 should have status identifier (New).”

Claims 10-18 were added by Article 34 Amendments filed for the corresponding PCT application (PCT/JP02/138543). A copy of the “Transmittal Letter to the United States Designated/Elected Office (DO/EO/US) Concerning a Filing Under 35 U.S.C. 371” (“the Transmittal Letter”) filed in connection with the instant application is enclosed, along with copies of the Amendments adding claims 10-18 to the PCT application. Applicants wish to point out that the attached copy of the Transmittal Letter was retrieved from the USPTO’s Patent


Application Information Retrieval (PAIR) system, thus indicating the USPTO's receipt of such Transmittal Letter.

Applicants further attach a copy of the Office Action Summary page of the current Office Action, wherein the Examiner not only acknowledges that claims 10-18 are pending (along with claims 1-9) but states that claims 11-18 are allowed.

In view of the foregoing remarks and the attachments hereto, Applicants respectfully submit that the status identifiers used for claims 10-18 in the Amendment filed on October 4, 2006 were correct. If any fees under 37 C. F. R. §§ 1.16 or 1.17 are due in connection with this filing, please charge the fees to Deposit Account No. 02-4300, Order No. 033082M224.

Respectfully submitted,
SMITH, GAMBRELL & RUSSELL, LLP

By:


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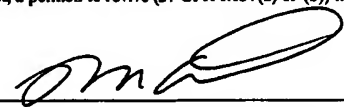
Dated: October 25, 2006

MAM/MM/cvj

Enclosures: (1) Transmittal Letter to the United States Designated/Elected Office (DO/EO/US)
Concerning a Filing Under 35 U.S.C. 371 (copy)
(2) First and Second Amendments to the Claims in the PCT Application (copies)
(3) Office Action Summary Page (copy)

OCT 25 2006 PATENT RECEIVED U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTORNEY'S DOCKET NUMBER 33082.224	
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371		U.S. APPLICATION NO. (if known, see 37 CFR 1.51) 10/511104	
INTERNATIONAL APPLICATION NO. PCT/JP02/138543	INTERNATIONAL FILING DATE December 27, 2002	PRIORITY DATE CLAIMED April 26, 2002	
TITLE OF INVENTION	SUBSTRATE PROCESSING APPARATUS		
APPLICANT(S) FOR DO/EO/US	Hiroichi Iwada, et al.		
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:			
1. <input checked="" type="checkbox"/> This is a FIRST submission of items concerning a filing under 35 U.S.C. 371. 2. <input type="checkbox"/> This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371. 3. <input checked="" type="checkbox"/> This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(I). 4. <input checked="" type="checkbox"/> A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date. 5. A copy of the International Application as filed (35 U.S.C. 371(c)(2)) a. <input type="checkbox"/> is transmitted herewith (required only if not transmitted by the International Bureau). b. <input checked="" type="checkbox"/> has been transmitted by the International Bureau (see Form PCT/IB/308) c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US). 6. <input checked="" type="checkbox"/> A translation of the International Application into English (35 U.S.C. 371(c)(2)). 7. <input checked="" type="checkbox"/> Amendments to the claims of the International Application under PCT Article 34 (35 U.S.C. 371). a. <input checked="" type="checkbox"/> are transmitted herewith (required only if not transmitted by the International Bureau). b. <input type="checkbox"/> have been transmitted by the International Bureau. c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired. d. <input type="checkbox"/> have not been made and will not be made. 8. <input checked="" type="checkbox"/> A translation of the amendments to the claims under PCT Article 34 (35 U.S.C. 371). 9. <input checked="" type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)). 10. <input type="checkbox"/> A translation of the annexes to the International Preliminary Examination Report under PCT Article 34 (35 U.S.C. 371(c)(5)). Items 11. to 16. below concern other document(s) or information included: 11. <input checked="" type="checkbox"/> An Information Disclosure Statement under 37 CFR 1.97 and 1.98. 12. <input checked="" type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included. 13. <input type="checkbox"/> A FIRST preliminary amendment. <input type="checkbox"/> A SECOND or SUBSEQUENT preliminary amendment. 14. <input type="checkbox"/> A substitute specification. 15. <input type="checkbox"/> A change of power of attorney and/or address letter. 16. <input checked="" type="checkbox"/> Other items or information: a. Cover Sheet of PCT Publication WO 03/092055 with International Search Report (PCT/ISA/210) b. Form PCT/IPEA/409 and 416 (in Japanese) c. Form PCT/IPEA/401 (in Japanese) d. Forms PCT/IB/301, PCT/IB/304 and PCT/IB/308 e. Translation of Claims after First and Second Amendment			
			CUSTOMER NO. 00441

COPY

(Page 2) U.S. DEPARTMENT OF COMMERCE: PATENT AND TRADEMARK OFFICE TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371				ATTORNEY'S DOCKET NUMBER 33082M224 U.S. APPLICATION NO. (if known, see 37 CFR 1.5) <div style="font-size: 2em; font-weight: bold;">10/511104</div>	
17. <input type="checkbox"/> The following fees are submitted:				CALCULATIONS	PTO USE ONLY
Basic National Fee (37 CFR 1.492(a)(1)-(5)): Search Report has been prepared by the EPO or JPO \$950.00 International preliminary examination fee paid to USPTO (37 CFR 1.482) \$730.00 No international preliminary examination fee paid to USPTO (37 CFR 1.482) but international search fee paid to USPTO (37 CFR 1.445(a)(2)) \$770.00 Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO \$ 1,100.00 International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(2)-(4) \$100.00					
ENTER APPROPRIATE BASIC FEE AMOUNT =				\$950.00	
Surcharge of \$130.00 for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.495(e)).				\$ —	
Claims	Number Filed	Number Extra	Rate		
Total Claims	18 - 20 =	0	x \$18.00	\$	
Independent Claims	2 - 3 =	0	x \$84.00	\$	
Multiple dependent claim(s) (if applicable)			+ \$290.00	\$	
TOTAL OF ABOVE CALCULATIONS =				\$ 950	
Reduction by 2 for filing by small entity, if applicable. Verified Small Entity statement must also be filed. (Note 37 CFR 1.9, 1.27, 1.28).				\$	
SUBTOTAL =				\$950	
Processing fee of \$130.00 for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(f)).				+	
TOTAL NATIONAL FEE =					
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property.				+	\$ 40.00
TOTAL FEES ENCLOSED =				\$990.00	
				Amount to be refunded	\$
				charged	\$
a. <input checked="" type="checkbox"/> A check in the amount of <u>\$990.00</u> to cover the above fees is enclosed. b. <input type="checkbox"/> Please charge my Deposit Account No. _____ in the amount of \$_____ to cover the above fees. c. <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. <u>02-4300</u> . NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed, and granted to restore the application to pending status.					
SEND ALL CORRESPONDENCE TO: SMITH, GAMBRELL & RUSSELL, LLP 1850 M Street, N.W., Suite 800 Washington, D.C. 20036 Telephone: (202) 659-2811 Facsimile: (202) 263-4329					
				 SIGNATURE	
				Michael A. Makuch, Reg. No. 32,263 NAME REGISTRATION NO. Date: <u>October 14, 2004</u>	

FIRST AMENDMENT

CLAIMS

1. (Amended) 1. A substrate processing apparatus comprising:

a rotary workpiece-holding means for holding and rotating a substrate;

a plurality of processing liquid pouring nozzles for pouring processing liquids on a surface of the substrate held by the rotary workpiece-holding means;

a nozzle-holding means for holding the processing liquid pouring nozzles at their home positions beside the rotary workpiece-holding means; and

a nozzle carrying means for detachably gripping desired one of the processing liquid pouring nozzles held on the nozzle-holding means, and carrying the desired processing liquid pouring nozzle to a working position above the substrate;

wherein the processing liquid pouring nozzles are held in alignment with straight lines extending between the center of the rotary workpiece-holding means about which the rotary workpiece-holding means rotates and a plurality of nozzle holding openings formed at suitable intervals in the nozzle-holding means, respectively, flexible supply tubes connecting the processing liquid pouring nozzles to processing liquid sources are arranged on extensions of the straight lines, respectively, and each processing liquid pouring nozzle and the supply tube connected to the processing liquid pouring nozzle move along the straight line when the nozzle carrying means carries the processing liquid pouring nozzle.

2. (Amended) The substrate processing apparatus according to claim 1, wherein each of the processing liquid pouring nozzles has a block-shaped nozzle head connected to the supply tube, and a nozzle tip attached to the nozzle head; and

the nozzle-holding means is provided with angular position determining walls disposed adjacently to the nozzle holding openings such that sides of the nozzle heads of the processing liquid pouring nozzles are contiguous with the angular position determining walls, respectively.

3. The substrate processing apparatus according to claim 1, wherein the nozzle-holding means includes horizontal movement inhibiting members that engage with the opposite side surfaces of the processing liquid pouring nozzles, and each of the processing liquid pouring nozzles has vertical movement inhibiting projections that engage with the opposite ends of the horizontal movement inhibiting member.

4. The substrate processing apparatus according to claim 3, wherein the horizontal movement inhibiting members are provided with attractive fixating means for fixedly holding the processing liquid pouring nozzles in place, and the processing liquid pouring nozzles are provided with plates at positions respectively corresponding to the attractive fixating means.

5. (Amended) The substrate processing apparatus according to claim 1, wherein the nozzle carrying means is movable in optional directions in a horizontal plane parallel to the surface of the substrate and in vertical directions.

6. The substrate processing apparatus according to claim 1, wherein the processing liquid pouring nozzles are provided in their upper surfaces with a gripping recess with which a gripper included in the nozzle carrying means is able to engage, and a positioning recess with which a positioning pin attached to the nozzle carrying means at a position adjacent to the gripper is able to engage.

7. The substrate processing apparatus according to claim 6, wherein the gripping recesses and the positioning recesses of the processing liquid pouring nozzles are formed such that lines connecting the gripping recesses and the

positioning recesses are parallel to each other.

8. The substrate processing apparatus according to claim 1, wherein a solvent vapor atmosphere creating space in which a solvent is stored and a solvent vapor atmosphere is produced is formed in the nozzle-holding means so as to communicate with the nozzle holding openings of the nozzle-holding means, the lower end of a drain line connected to the nozzle holding openings and extending downward is disposed in a sump formed in the bottom wall of a drain/exhaust duct, and drained liquid flowing through the drain line and overflowing the sump is discharged.

9. The substrate processing apparatus according to claim 8, wherein the drain/exhaust duct is connected to a discharge port formed in the bottom of a vessel surrounding a space extending around and under the rotary workpiece-holding means, and the bottom of the drain/exhaust passage is sloped.

10. (Added) The substrate processing apparatus according to claim 1, wherein the nozzle-holding means is provided with attractive fixating means for fixedly holding the processing liquid pouring nozzles in a substantially radial arrangement.

11. (Added) A substrate processing apparatus comprising:

- a rotary holding means for holding and rotating a substrate to be processed;

- a plurality of processing liquid pouring nozzles for pouring processing liquids on a surface of the substrate held by the rotary holding means;

- a nozzle-holding means for holding the processing liquid pouring nozzles at their home positions beside the rotary holding means in a substantially radial arrangement; and

- a nozzle carrying means for detachably gripping desired one of the processing liquid pouring nozzles held on the nozzle-holding means, and carrying the desired

processing liquid pouring nozzle to a working position above the substrate;

wherein the nozzle carrying means includes a gripper for gripping the processing liquid pouring nozzle, and a positioning pin disposed near the gripper; and

each of the processing liquid pouring nozzle has a block-shaped nozzle head connected to a processing liquid supply tube and provided in its top surface with a gripper receiving hole in which the gripper of the nozzle carrying means engages detachably and a positioning hole formed such that the positioning pin of the nozzle carrying means engages when the gripper engages in the gripper receiving hole.

12. (Added) The substrate processing apparatus according to claim 11, wherein the gripper and the positioning pin are arranged on a straight line, the gripper receiving hole and the positioning hole of each processing liquid pouring nozzle are arranged on a straight line, the straight lines on which the respective gripper receiving holes and the respective positioning holes of the processing liquid pouring nozzles are extended parallel to each other at predetermined intervals when the processing liquid pouring nozzles are held at the home positions in the substantially radial arrangement on the holding means, the respective positions of the positioning holes with respect to the corresponding gripper receiving holes of the processing liquid pouring nozzles are different from each other, and the positioning pin of the nozzle carrying means is able to engage in the positioning hole of any one of the processing liquid pouring nozzles.

13. (Added) The substrate processing apparatus according to claim 11, wherein the gripper capable of engaging in the gripper receiving hole has a cylindrical body provided in its lower part with a plurality of radial through holes, and a plurality of spherical members placed in the radial through holes so as to be protruded from and retracted into the radial through holes, respectively.

SECOND AMENDMENT

11. (Amended) A substrate processing apparatus comprising:

a rotary holding means for holding and rotating a substrate to be processed;

a plurality of processing liquid pouring nozzles for pouring processing liquids on a surface of the substrate held by the rotary holding means;

a nozzle-holding means for holding the processing liquid pouring nozzles at their home positions beside the rotary holding means in a substantially radial arrangement in alignment with radial lines extending at predetermined angular intervals from the center of the rotary holding means; and

a nozzle carrying means for detachably gripping desired one of the processing liquid pouring nozzles held on the nozzle-holding means, and carrying the desired processing liquid pouring nozzle to a working position above the center of the substrate;

wherein the nozzle carrying means includes a gripper for gripping the processing liquid pouring nozzle, and a positioning pin disposed near the gripper;

each of the processing liquid pouring nozzle has a block-shaped nozzle head connected to a processing liquid supply tube and provided in its top surface with a gripper receiving hole in which the gripper of the nozzle carrying means engages detachably and a positioning hole formed such that the positioning pin of the nozzle carrying means engages when the gripper engages in the gripper receiving hole;

the positioning pin engages in the positioning hole of the processing liquid pouring nozzle held at the home position on the nozzle-holding means when the gripper engages in the gripper receiving hole of the same processing liquid pouring nozzle; and

the nozzle carrying means engages the gripper and the positioning pin in the gripper receiving hole and the positioning hole of the processing liquid pouring nozzle and carries the processing liquid pouring nozzle along the radial line to the working position above the center of the substrate without changing the angular position of the processing liquid pouring nozzle.

12. The substrate processing apparatus according to claim 11, wherein the gripper and the positioning pin are arranged on a straight line, the gripper receiving hole and the positioning hole of each processing liquid pouring nozzle are arranged on a straight line, the straight lines on which the respective gripper receiving holes and the respective positioning holes of the processing liquid pouring nozzles are extended parallel to each other at predetermined intervals when the processing liquid pouring nozzles are held at the home positions in the substantially radial arrangement on the holding means, the respective positions of the positioning holes with respect to the corresponding gripper receiving holes of the processing liquid pouring nozzles are different from each other, and the positioning pin of the nozzle carrying means is able to engage in the positioning hole of any one of the processing liquid pouring nozzles.

13. The substrate processing apparatus according to claim 11, wherein the gripper capable of engaging in the gripper receiving hole has a cylindrical body provided in its lower part with a plurality of radial through holes, and a plurality of spherical members placed in the radial through holes so as to be protruded from and retracted into the radial through holes, respectively.

14. (Added) The substrate processing apparatus according to claim 11, wherein each of the processing liquid pouring nozzles has a block-shaped nozzle head connected to the supply tube, and a nozzle tip attached to the nozzle head; and

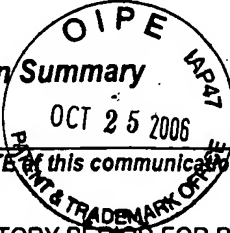
the nozzle-holding means is provided with angular position determining walls disposed adjacently to the nozzle holding openings such that sides of the nozzle heads of the processing liquid pouring nozzles are contiguous with the angular position determining walls, respectively.

15. (Added) The substrate processing apparatus according to claim 11, wherein the nozzle-holding means includes horizontal movement inhibiting members that engage with the opposite side surfaces of the processing liquid pouring nozzles, and each of the processing liquid pouring nozzles has vertical movement inhibiting projections that engage with the opposite ends of the horizontal movement inhibiting member.

16. (Added) The substrate processing apparatus according to claim 15, wherein the horizontal movement inhibiting members are provided with attractive fixating means for fixedly holding the processing liquid pouring nozzles in place, and the processing liquid pouring nozzles are provided with plates at positions respectively corresponding to the attractive fixating means.

17. (Added) The substrate processing apparatus according to claim 11, wherein the nozzle carrying means is movable in optional directions in a horizontal plane parallel to the surface of the substrate and in vertical directions.

18. The substrate processing apparatus according to claim 11, wherein the nozzle-holding means is provided with attractive fixating means for fixedly holding the processing liquid pouring nozzles in a substantially radial arrangement.

 <p>Office Action Summary</p>	Application No.	Applicant(s)	
	10/511,104	INADA ET AL.	
	Examiner	Art Unit	
	Brenda A. Lamb	1734	

- The MAILING DATE of this communication appears on the cover sheet with the correspondence address -

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on 10/14/04 & 3/25/05.

2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1-18 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☒ Claim(s) 11-18 is/are allowed.

6) ☒ Claim(s) 1,2,5,8 and 9 is/are rejected.

7) ☒ Claim(s) 3,4,6,7 and 10 is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☒ All b) ☐ Some * c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/14/04 & 3/25/05.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

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